

Remarks

1. Introduction

Claims 1-35, and 37-104, and 107-120 are pending.

2. Claim Rejections based on 35 USC § 101

Claims 81 and 105-106 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matters. Applicants cancel claims 105 and 106. Further, Applicants contend that claim 81, which recites a "machine readable medium," is directed to statutory subject matter.

3. Double Patenting

Claims 1 and 27 of the present application were provisionally rejected under 35 U.S.C. 101 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 16 of copending Application No. 10/684,208, (hereinafter referred to as "the '208 application"). Claims 15, 81, and 105-107 of the present application were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 48, 66, and 51 of the '208 application. Applicants submit a terminal disclaimer to overcome the rejection.

4. Finality of the Office Action

The Office Action was designated as final, based on the reasoning that Applicants amendment necessitated the new ground for rejection. However, Applicant did not amend at least some of the claims, but the rejection for these unamended claims was changed. For example, applicant did not amend claim 62 (merely putting the dependent claim in independent format). However, the Examiner changed the rejection of claim 62 from a rejection under 35 U.S.C. §102 to a rejection under 35 U.S.C. §103 (and including new reference U.S. Patent No. 4,888,809 (Knibbeler)). See also claim 54. Therefore, Applicants contend that the finality of the Office Action is premature and request that it be withdrawn.

5. Rejections based on 35 U.S.C. §103

Claims 1-5, 8-9; 14-19, 24-25, 27-33, 37-38, 46-47, 50-53; 57, 60, 62-66, 70, 84, 91, 99-102, 105-109, 111-116 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2003/0179891 (Rabinowitz et al.) and further in view of U.S. Patent No. 4,888,809 (Knibbeler). Claims 10-13, 20-23, 26, 47, 49, 54-58, 59, 67, 73, 85, 92-93, 95, 97, 110 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2003/0179891 A1 (Rabinowitz). Claims 79-80, 103-104 were rejected as being unpatentable over the Rabinowitz reference in view of U.S. Publication No. 2003/0058786 A1 (Sato et al.).

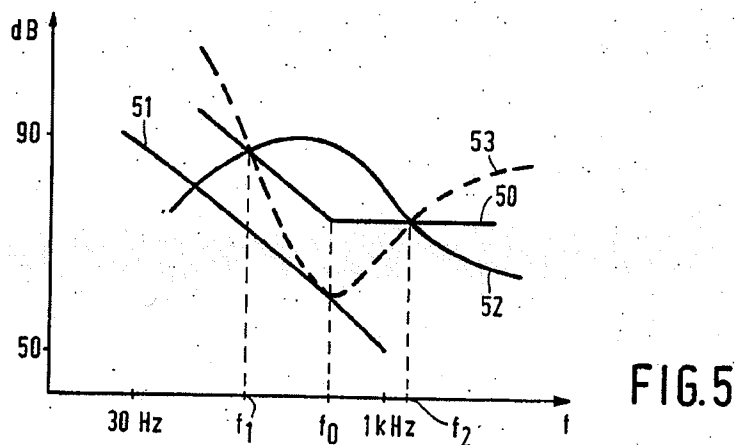
In rejecting the claims, the Office Action acknowledges that the Rabinowitz reference fails to teach “predicting the transfer function at each of the plurality of listening positions.” To remedy the failing in the Rabinowitz reference, the Office Action relies on the Knibbeler.

Specifically, the Office Action reasons the following:

Knibbeler disclose of an equalization system in a car wherein the specific of predicting the transfer function at each of the plurality of listening positions (fig.1, fig.5, col.2 line 1-5 & line 25-37, col. 9 line 15-30) for the purpose of providing desired frequency response to at least two non-coincident listening positions.

Office Action at p. 5. Applicants respectfully disagree.

For convenience, Applicants reproduce Figure 5 of the Knibbeler reference below:



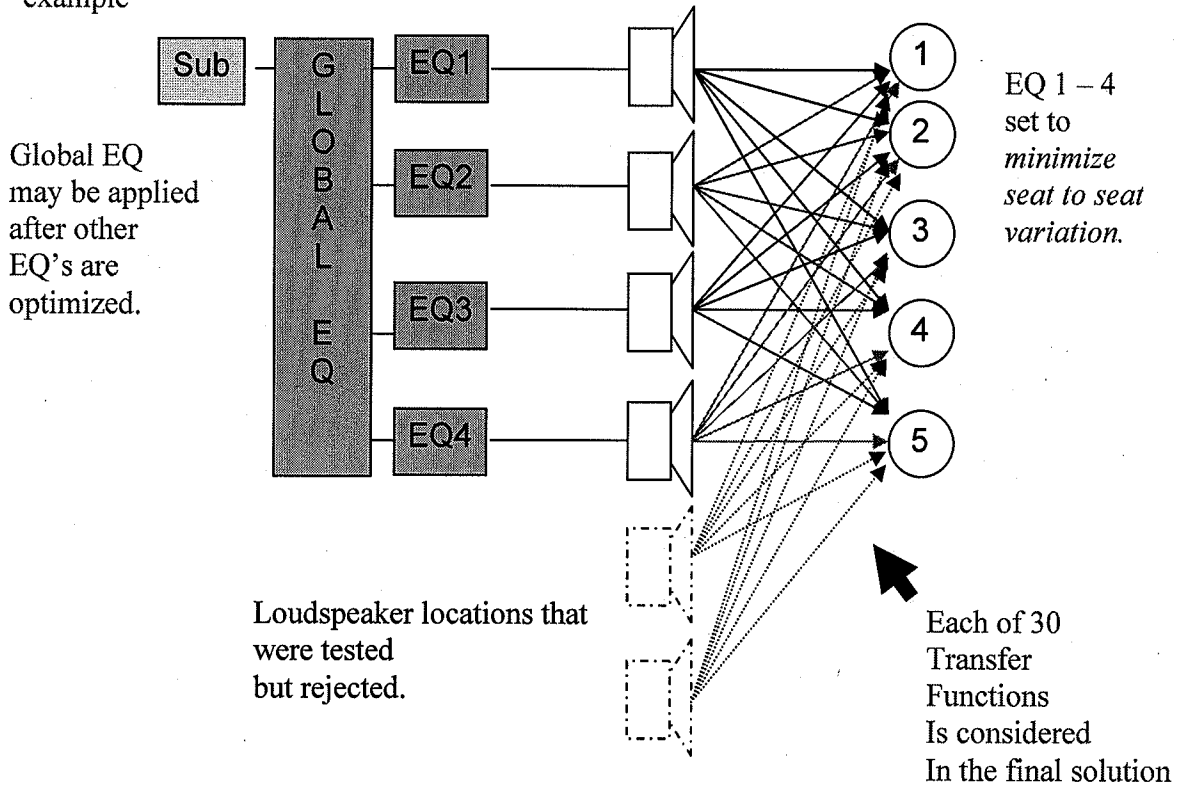
As shown in Figure 5, there is a desired characteristic curve 50, and two other curves (curve 51 is the background noise of the car and curve 52 is the actual transmission from the input terminal to the listening position. The Knibbeler reference teaches that in order to get the desired characteristic curve 50, the output must be modified to curve 53. In other words, there is no

prediction of a transfer function whatsoever. Thus, the Knibbeler reference simply measures the actual sound at the listening position, and then subtracts the ideal to get the adjusted value.

In order to accomplish this, the Knibbeler reference teaches a process of making actual adjustments to the system (instead of any "predicting" of the transfer functions). Specifically, the Knibbeler reference teaches the following steps: (1) set the volume levels for front and rear speakers to provide overall equal sound levels at front seat; (2) equalize the rear seat using the rear speaker equalizer; and (3) adjust the front speaker equalizer so that together with the equalizer for the rear speaker (as determined in step 2), the desired response in the front seat is attained. Thus, the Knibbeler reference teaches a trial-and-error type of adjustment, whereby the volume levels and equalization are actually changed.

This is significantly different from the present application as claimed in which the transfer functions are "predicted". Specifically, because of the predicting/analyzing of the transfer functions at the plurality of listening positions, the present application may select make predictions (without actually making the changes), analyze the predictions, and then adjust the system parameters. This process is significantly different from Knibbeler, and improves characteristics across the different listening positions, such as flatness, consistency, efficiency, smoothness, etc. An illustration of the predicted transfer functions at each of the listening positions is illustrated below:

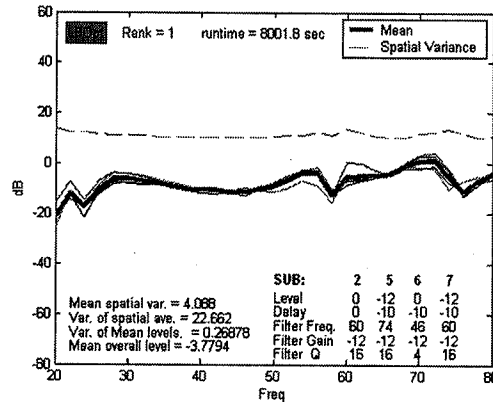
Subwoofer
example



As illustrated above, equalizations for one, some, or all of the different speakers (EQ1, EQ2, EQ3, and EQ4). Predicted transfer functions for the different equalizations may be generated for each of the listening positions. For example, the predicted transfer functions generated by speaker 1 (using EQ1) may be generated for listening positions 1 through 5. Likewise, the predicted transfer functions for speakers 2-4 (using EQ2, EQ3, and EQ4) may likewise be generated. In this way, the transfer functions from each of the speakers may be used to determine the resulting sound at listening positions 1-5. The statistical analysis may then be used to select the equalization (EQ1-4) that results in a particular characteristic (such as flatness across listening positions 1-5).

A real-world example is reproduced below:

Current Application (4 subs)



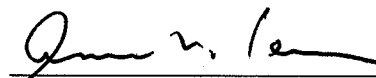
Each fine curve represents response at a single seat, the heavy curve is spatial average of the seats, and the dashed curve is variance as a function of frequency. As shown above, as a result of predicting the transfer functions at each of the listening positions, and statistically analyzing across the listening positions, the correction factors may be selected such that characteristics across the listening positions (such as variance) may be improved. For example, as shown above, the variance under the methodology as claimed is significantly flatter.

Thus, none of the references, including the Knibbeler and Rabinowitz references, either alone or in combination, teach the claims as currently presented. Therefore, Applicants request allowance of the present claims.

6. Conclusion

The Examiner is invited to contact the undersigned attorneys for the Applicant via telephone if such communication would expedite this application.

Respectfully submitted,



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